

# Phase I Environmental Site Assessment (ESA)

## Farrow Rd. Site

5406 Farrow Road  
Columbia, South Carolina

April 11, 2017



## **Phase I Environmental Assessment (ESA) Report**

Farrow Rd. Site  
5406 Pinehurst Road  
Columbia, Richland County, South Carolina

Prepared for: Eau Claire Development Corporation (ECDC)  
Cecil Hannibal, Interim Executive Director  
3905 Ensor Avenue  
Columbia, SC 29203  
[cdhannibal@columbiasc.net](mailto:cdhannibal@columbiasc.net)  
Phone: (803) 733-8438

City of Columbia  
P.O. Box 147  
Columbia, SC 29217  
Phone: (803) 545-3026

City of Columbia Brownfield Program  
C/O Columbia Development Corporation (CDC)  
Attn: Fred Delk, Executive Director  
911 Lady Street, Suite C  
Columbia, SC 29201  
[cdc@columbiasc.net](mailto:cdc@columbiasc.net)  
Phone: (803) 988-8040

Prepared by: Cardno Inc.  
1812 Lincoln St.  
Suite 301  
Columbia, SC 29201  
Brian Kvam, P.G.  
Senior Project Manager  
[brian.kvam@cardno.com](mailto:brian.kvam@cardno.com)  
Phone: (803) 929-6071

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## Commonly Used Acronyms

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AAI	All Appropriate Inquiry
ABCA	Analysis of Brownfield Cleanup Alternatives
ACM	Asbestos Containing Material
AST	Aboveground Storage Tank
ASTM	American Society for Testing & Materials
BLS	Below Land Surface
Cardno	Cardno Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CREC	Controlled Recognized Environmental Condition
EP	Environmental Professional
ERNS	Emergency Response Notification System
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESI	Expanded Site Inspection
FOIA	Freedom of Information Act
FIRM	Flood Insurance Rate Map
Historical	Historical Recognized Environmental Condition
IC	Institutional Controls
LBP	Lead-Based Paint
LUST	Leaking Underground Storage Tank
MSL	Mean Sea Level
NFRAP	No Further Remedial Action Plan
NPL	National Priority List
PA/SI	Preliminary Assessment/Site Inspection
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PPB	Parts per Billion
PPM	Parts Per Million
PRG	Preliminary Remediation Goal
RACM	Regulated Asbestos Containing Material
RBC	Risk Based Concentrations
RBSL	Risk Based Screening Level
RCRA	Resource Conservation and Recovery Act
RCRA CORRACT	RCRA Information Systems
RCRA GEN	RCRA System Generators
RCRA TSD	RCRA Treatment, Storage, and Disposal Facilities
REC	Recognized Environmental Condition
SCDHEC	South Carolina Department of Health and Environmental Control
SCGS	South Carolina Geologic Survey
SHWS	State Hazardous Waste Site
SWL	Solid Waste Facilities List
TAL	Target Analyte List
TMS	Tax Map Serial
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VCC	Voluntary Cleanup Contract
VCP	Voluntary Cleanup Program

## 1 Executive Summary

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At the request of the Eau Claire Development Corporation (ECDC) and Mr. Cecil Hannibal, Executive Director, the City of Columbia (City), and in conjunction with the City's Brownfield Assessment Grant from the U.S. Environmental Protection Agency (EPA), Cardno Inc. (Cardno) has conducted a Phase I Environmental Site Assessment (ESA) of an approximately 9.9-acre tract known as the Farrow Road Site (site). The site is located at 5406 Farrow Road (TMS R11612-04-01) in Columbia, South Carolina.

This Phase I ESA was performed by following the American Society for Testing & Materials (ASTM) Practice E-1527-13 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" developed by ASTM Subcommittee E50.02 for Commercial Real Estate Transactions. ASTM E-1527-13 also meets the All Appropriate Inquiries (AAI) standards set forth by the United States Environmental Protection Agency (EPA) in 40 CFR Part 312. Any exceptions to, or deletions from, this practice are described in Sections 2.4 and 9.0 of this report.

The objective of this Phase I ESA was to identify Recognized Environmental Conditions (RECs) as defined in ASTM Practice E-1527-13 with regard to the subject property and to evaluate potential future liability associated with past or current practices on the subject property.

This Phase I ESA included the following types of investigation:

- A records review of all pertinent regulatory agency databases and applicable local records;
  - An EDR environmental database search report;
  - Aerial photographs from 1936, 1938, 1943, 1955, 1964, 1966, 1971, 1983, 1989, 1994, 1999, 2005, 2006, 2009, and 2011;
  - A historical city directory report dating back to 1952;
  - Historical topographical maps dated 1904, 1947, 1948, 1972, 1983, 1990, 1997, and 2014;
  - Sanborn Fire Insurance maps were not available for the site;
- Interview(s) with persons familiar with the subject property;
- Site reconnaissance to inspect the subject property for evidence of RECs conducted by Mr. Brian Kvam and Mr. David Sykes of Cardno on March 15, 2017.

Cardno has performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in Sections 2.4 and 9.0 of this report.

This assessment has revealed no evidence of RECs in connection with the subject property.

## 2 Introduction

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Cardno has conducted a Phase I ESA of an approximately 9.9-acre tract known as the Farrow Road Site. The site is located at 5406 Farrow Road (TMS R11612-04-01) in Columbia, South Carolina in a residential and commercial area near downtown Columbia, South Carolina.

The property is currently for sale and the ECDC and the City are marketing the site for redevelopment. This assessment is using funds from the City's EPA Brownfield Assessment Grant to aid in the site's property transfer and redevelopment.

### 2.1 Purpose

The purpose of this Phase I ESA is to identify to the extent possible any RECs, Controlled RECs, or Historical RECs on the property.

*Recognized Environmental Condition (REC) - The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.*

*Controlled Recognized Environmental Condition (CREC) – A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).*

*Historical Recognized Environmental Condition (HREC) – A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).*

This assessment is completed with respect to the scope of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and petroleum products. As such, this practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner defense to CERCLA liability; that is, the practices that constitute 'all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice' as defined in 42 USC§9601(35(B)).

### 2.2 Detailed Scope of Services

The Phase I ESA is a general characterization of possible RECs present on a property. This ESA was completed in accordance with ASTM E-1527-13 "Standard Practice for Environmental

Site Assessments: Phase I Environmental Site Assessment Process.” ASTM E-1527-13 meets the standard set forth by the USEPA in the AAI Rule. The services provided are detailed below:

- Review of federal and state lists of environmentally regulated sites to determine if the subject property or nearby properties are listed as having a present or past environmental problem, are under investigation, or are regulated by state or federal environmental regulatory agencies;
- Review of site background information, including aerial photographs, title records, and interviews with persons familiar with the subject property to evaluate present and past land uses;
- Physical inspection and photographic documentation of the subject property and adjacent properties to identify obvious indications of present or past activities that have or could have environmentally impacted the subject property;
- Development of a report documenting Cardno’s findings.

### **2.3 Significant Assumptions**

No significant assumptions were made prior to the initiation of this Phase I ESA.

### **2.4 Limitations and Exceptions**

The findings of this assessment are based on the following inherent limitations and/or exceptions:

- The representations contained herein are based on the available data and on the contracted scope of the work. Cardno and the Environmental Professional (E.P.) make no representations or conclusions on information beyond the scope of this assessment.
- Cardno derived the data in this report primarily through visual inspections, examination of records in the public domain, and interviews with informed individuals about the subject property. The passage of time, manifestation of latent conditions, or the occurrence of future events may require further study at the subject property, analysis of the data, and revaluation of the findings, observations, and conclusions in the report.
- The data reported and the findings, observations, and conclusions expressed in this report are limited by the scope of work prescribed by ASTM E-1527-13.
- No warranty or guarantee, whether expressed or implied, is made with respect to the data or the reported findings, observations, and conclusions, which are based solely upon site conditions in existence at the time of the investigation.
- Cardno presents professional opinions and findings of a scientific and technical nature. The report shall not be construed to offer legal opinion or legal representations as to the requirements of, nor compliance with, environmental laws, rules, regulations, or policies of federal, state, or local governmental agencies. Any use of the Phase I ESA report constitutes acceptance of the limits of Cardno’s liability. Cardno’s liability extends only to its client and not to any other parties who may obtain the Phase I ESA Report.
- The conclusions presented in this report are professional opinions based on data described in this report. They are intended only for the purpose, site location, and the project indicated. This report is not a definitive study of contamination at the subject property and should not be interpreted as such. An evaluation of the subsurface soil and groundwater conditions was not performed as part of this investigation. No sampling or



chemical analyses of structural material or other media was completed as part of this study unless explicitly stated.

- This report is based, in part, on unverified information supplied to Cardno by third party sources. While efforts have been made to substantiate this third party information, Cardno cannot guarantee its completeness or accuracy.

## **2.5 Special Terms and Conditions**

Cardno performed this assessment for the users as part of their environmental due diligence on the site. Funding for this Phase I ESA was provided by the City of Columbia as part of their EPA Brownfield Assessment Program.

## **2.6 User Reliance**

This report, including supporting field data and notes (collectively referred to hereinafter as "information"), was prepared or collected by Cardno for the benefit of the users, ECDC, the City of Columbia, and any affiliated groups deemed necessary by the users. The report is not intended for use by any other party.

# **3 Site Description**

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## **3.1 Site Location and Description**

The subject property consists of an approximately 9.9-acre tract known as the Farrow Road Site and is located at 5406 Farrow Road. The site is comprised of one, currently undeveloped parcel (TMS R11612-04-01) located in a residential, commercial area along Farrow Road, just outside of downtown Columbia. A Site Location Map, consisting of the relevant portion of the United States Geological Survey (USGS) topographic map, Columbia North and Fort Jackson North Quadrangles, is included as **Figure 1**. The aerial layout of the site and surrounding properties are depicted on **Figure 2**.

## **3.2 Site and Vicinity General Characteristics**

The subject property is located in a residential, commercial area of the city and is zoned for general commercial use.

## **3.3 Current Use of the Property**

The property is currently undeveloped and vacant. **Figure 2** is an aerial view of the property in its current condition.

## **3.4 Descriptions of Structures, Roads, Other Improvements on the Site**

The site is bounded to the west by Farrow Road and can be accessed by a driveway along Farrow Road. The eastern most boundary to the property is SC-277. There is a dirt road that runs the length of the property from west to east that appears to be mostly an access road for the billboard along SC-277. What appears to be the outline of a former building foundation can be seen near Farrow Road.

### **3.5 Current Uses of the Adjoining Properties**

North	Residential and church property
South	Residential
East	SC Highway 277 (SC-277)
West	Residential, commercial, and undeveloped

## **4 User Provided Information**

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### **4.1 Title Records**

The user did not provide Cardno with current title records and Cardno did not review a chain-of-title in conjunction with this assessment.

### **4.2 Environmental Liens or Activity and Use Limitations**

Neither Cardno nor the users were aware of any environmental liens or use restrictions (other than zoning) encumbering the subject site.

### **4.3 Specialized Knowledge**

Cardno was not provided with any form of specialized knowledge regarding the subject site.

### **4.4 Commonly Known or Easily Ascertainable Information**

No commonly known or easily ascertainable information was provided.

### **4.5 Valuation Reduction for Environmental Issues**

The user believes that the purchase price reflects the fair market value of the property.

### **4.6 Owner, Property Manager, and Occupant Information**

The current property owner is shown by the Richland County Tax Assessor as the City of Columbia. The site is currently undeveloped and vacant.

### **4.7 Reason for Performing Phase I ESA**

This Phase I ESA was performed for the users as part of environmental due diligence at the site in preparation for property transfer and potential future development.

### **4.8 AAI User Questionnaire**

Ms. Melissa Gentry, Assistant City Manager completed and submitted the All Appropriate Inquiry (AAI) User Questionnaire. A copy of this questionnaire is included in **Appendix A**.

### **4.9 Other**

No additional information was provided.

## 5 Records Review

### 5.1 Standard Environmental Record Sources

The records review obtains and reviews records which will help identify RECs in connection with the subject property. Federal and state regulatory databases were reviewed to further identify any known sources of contamination on or within designated research radii of the subject property. The federal records searched during this assessment included sites which handle or dispose of hazardous materials and sites which otherwise have been identified to have air, soil, or groundwater contamination. The state records reviewed included hazardous waste sites, landfills, and sites with registered or leaking underground storage tanks (USTs).

Cardno contracted with Environmental Data Resources, Inc. (EDR) to perform the regulatory review (**Appendix B**). The results are discussed below and the regulatory databases reviewed and corresponding research distances are summarized in the report in **Appendix B**. Review of the federal and state databases was conducted according to ASTM E-1527-13 and AAI standards for Phase I ESAs. Figures illustrating the locations of the sites identified during the database search (relative to the site and depicting the appropriate designated research radii corresponding to each database) are also included in **Appendix B**.

The site was not identified by EDR on any of the lists.

Federal and state reporting lists are summarized in the following table. Listings requiring further discussion are described below.

<b>Federal Reporting Lists</b>	<b>Listings Reported</b>
National Priority List (NPL)	0
National Priority List Delisted (NPL Delisted)	0
Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS)	0
No Further Remedial Action Planned (NFRAP)	0
Facility Registration System (FRSSC) – Formerly FINDS List	0
RCRA Corrective Action Facilities (RCRAC)	0
RCRA Treatment, Storage, and Disposal Facilities (TSD)	0
RCRA Conditionally Exempt Small Quantity Generator (CESQG)	0
RCRA Generator (GEN)	0
Federal Brownfields	0
Emergency Response Notification System (ERNS)	0
Tribal Lands	0
Federal Engineering and Institutional Controls (IC/EC)	0
<b>State/Local/Tribal Reporting Lists</b>	<b>Listings Reported</b>
State/Tribal Hazardous Waste Sites* (SHWS)	2
State Spills 90	0
State/Tribal Solid Waste Facilities List (SWL)	0
State/Tribal Leaking Underground Storage Tank (LUST)	1
State/Tribal Underground Storage Tank (UST)/ Above-ground Storage Tank (AST)	3
State/Tribal EC/IC	0
State/Tribal Voluntary Cleanup Program (VCP)	0
State/Tribal Brownfields	0
State Other*	0
State Groundwater Contaminant Inventory (GWCI)	1

Local Brownfield List	0
Local Lists of Landfill/Solid Waste Disposal Sites	0
Local Hazardous Waste/Contaminated Sites (ALLSITES)	0
RCRA NonGEN/NLR List	0
EDR Manufactured Gas Plant (MGP) Database	0
Drycleaning Facility Restoration Trust Fund Database	0
EDR High Risk Historical Records (HRHR)	0
EDR US Historical Cleaners List	0

\*In the state of South Carolina, State/Tribal Sites includes South Carolina CERCLA sites and State Other includes South Carolina Dry Cleaning sites.

### 5.1.1 **State Hazardous Waste Site Records (SHWS)**

SHWS: State hazardous waste site records are the states equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

A review of the SHWS list, as provided by EDR, has revealed that there are 2 SHWS sites within approximately 1 mile of the site.

Lower Elevation	Address	Direction/Distance
AT&T Truman St.	2939 Truman St.	S 1/2 – 1 (0.777 mi.)
James Henderson Site	5503 ½ Cabot Ave.	NW 1/2 – 1 (0.909 mi.)

A review of the information provided for the listings indicated that they are of a direction and/or of sufficient distance away that they do not constitute RECs.

### 5.1.2 **Leaking Underground Storage Tank (LUST)**

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Health & Environmental Control's Leaking UST list.

A review of the LUST list, as provided by EDR, has revealed that there is 1 LUST site within approximately 0.5 miles of the site.

Equal/Higher Elevation	Address	Direction/Distance
El Cheapo	5400 Farrow Rd.	WSW 1/8 – 1/4 (0.236 mi.)

While located in an apparent up-gradient direction from the site, the El Cheapo gas station appears to have a slope where surface water (and more than likely groundwater) will flow away from the site to the west away from the site. Therefore, Cardno does not consider this to be an REC.

### 5.1.3 **Underground Storage Tank (UST) / Above-ground Storage Tank (AST)**

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Health & Environmental Control's list: Comprehensive Underground Storage Tanks.

AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Health & Environmental Control's list: Comprehensive Aboveground Storage Tanks.

A review of the UST list, as provided by EDR, has revealed 3 listings within approximately 0.25-mile of the site.

Equal/Higher Elevation	Address	Direction/Distance
El Cheapo (UST)	5400 Farrow Rd.	WSW 1/8 – 1/4 (0.236 mi.)
Kayo Service Station (UST)	5400 Farrow Rd.	WSW 1/8 – 1/4 (0.236 mi.)
Lower Elevation	Address	Direction/Distance
555 Stop and Shop (AST)	5646 Farrow Rd.	NNE 1/8 – 1/4 (0.236 mi.)

Based on the information reviewed for all of the other listings in the EDR report, they are not considered RECs to the site.

## 5.2 Additional Environmental Records

### 5.2.1 Groundwater Contamination Inventory Cases

GWCI: Groundwater Contamination Inventory Cases maintained by SCDHEC where sites have known groundwater contamination over a federal maximum contaminant level (MCL).

A review of the GWCI list, as provided by EDR, has revealed that there is 1 GWCI listing within approximately 0.5 miles of the site.

Equal/Higher Elevation	Address	Direction/Distance
El Cheapo	5400 Farrow Rd.	WSW 1/8 – 1/4 (0.236 mi.)

While located in an apparent up-gradient direction from the site, the El Cheapo gas station appears to have a slope where surface water (and more than likely groundwater) will flow away from the site to the west away from the site. Therefore, Cardno does not consider this to be an REC.

## 5.3 Physical Setting

### 5.3.1 Topography

Cardno has reviewed the most current USGS Topographic Maps covering the subject property (**Figure 1**). The purpose of this review is to evaluate the hydraulic conditions on the subject property and surrounding properties. It is not the purpose of this report to evaluate the geotechnical condition of the subject property; therefore, no geotechnical documents were examined.

According to the USGS topographic maps Columbia North and Fort Jackson North Quadrangles, the site is generally flat lying with a gentle slope from west to east across the site and north to south on the eastern side of the property. The average elevation of the site was reported as approximately 325 feet Mean Sea Level (MSL). Stormwater flow appears to follow the topographic trend at the site and groundwater is anticipated to mimic the flow of stormwater across the property to the east with a northerly component as well.

### **5.3.2      Regional Geology**

According to the USGS and the South Carolina Geologic Survey (SCGS), the subject property is located along the Fall Line of South Carolina. The Fall Line along the eastern coast of the United States is an east-facing escarpment where the Piedmont Physiographic Province descends steeply to the Atlantic Coastal Plain. The Fall Line marks the boundary between the hard metamorphosed terrain of the Piedmont and the sandy, relatively flat outwash plain of the upper Coastal Plain, which consists primarily of Cretaceous and Tertiary sediments.

### **5.3.3      Hydrogeology**

According to the Groundwater Atlas of the United States, the primary aquifer system in the area of the site is the Southeastern Coastal Plain Aquifer System. The system is composed predominantly of unconsolidated or partly consolidated sediments ranging in age from Cretaceous to late Tertiary. The northern limit of the aquifer system, located along the Fall Line, is in contact with crystalline rocks or unconsolidated sedimentary rocks of Paleozoic age. Most of the aquifers in the system consist primarily of fine to coarse grained sands, but coarser grained, fluvial to deltaic sediments such as coarse sand and gravel can be found along the northern extent of the aquifer system. Rock types and textures may change dramatically within short vertical or horizontal distances due to the complex depositional conditions involved with fluctuating sea levels and the resulting changes in energy conditions.

Site-specific groundwater information is not available for the site, however based on professional knowledge it is likely to be encountered within 30 to 40 feet below ground surface (bgs). Data concerning the direction of groundwater flow at the site is also not available; however, it is expected to mimic the surface topography and flow to the east-northeast.

### **5.3.4      Wetlands and Floodplains**

According to the U.S Fish and Wildlife Service National Wetlands Inventory, no designated wetlands areas exist on the site. However, the northeastern most portion of the property is low lying and appears to have been a pond at one point in the past.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Number 45079C0242K, the site is not located within a designated flood zone.

## **5.4            Historical Use Information on the Property**

The following sources of information were reviewed to determine the historical use of the subject site: historic topographic maps, aerial photographs, and city directories. Historical research documentation is included in **Appendix C**. Sanborn Fire Insurance Maps were not available for the site.

### **Historic Topographic Maps**

The historic topographic maps dated 1904, 1947, 1948, 1972, 1983, 1990, 1997, and 2014 were reviewed for this assessment.

The 1972 map shows a pond on the eastern edge of the site along with dirt/gravel roads that correspond with the mobile home park observed in the aerial photo series. The 1972, 1983, 1990, and 1997 maps show the outline of a building that appears to have once occupied the

site. Based on the information provided in the city directory report, this building corresponds with the former uses as a mobile home sales office and later a beauty salon.

No RECs were identified as a result of the historic topographic map review.

### **Aerial Photographs**

Aerial photographs depicting the site and surrounding areas dated 1936, 1938, 1943, 1955, 1964, 1966, 1971, 1983, 1989, 1994, 1999, 2005, 2006, 2009, and 2011 were reviewed in conjunction with this Phase I ESA.

The site was shown as undeveloped property until the 1966 photo where a series of dirt roads (central portion of the site) and a sand pit (eastern portion of the site) are visible. The 1971 aerial shows the site with apparent mobile home and with the sand pit filled in by water to form a pond and a building is visible. By 1983, the pond is no longer visible and the mobile homes appear to be gone. By this time, SC-277 was built and is visible as the eastern property boundary. It is unclear in the photo series when the building stopped appearing until the 2005 photo where it is clearly non-existent. The site appears in its current state from the 2005 photo through now.

No RECs were identified as a result of the historic aerial map review.

### **City Directories**

City directories from 1952 through 2013 were reviewed in conjunction with this Phase I ESA. 5406 Farrow Road was listed as the Helen Norris Beauty Gallery in the 1988, 1992, and 1995 directories. The address was listed as First Choice Homes in the 1984 directory. No other listings for the site were reported.

No RECs were identified as a result of the historic city directory review.

## **5.5 Historical Use Information on Adjoining Properties**

The following sources of information were reviewed to determine the historical use of adjoining properties: historic topographic maps, aerial photographs, and city directories. Historical research documentation is included in **Appendix C**. Sanborn Fire Insurance Maps were not available for the site.

### **Historic Topographic Maps**

The historic topographic maps dated 1904, 1947, 1948, 1972, 1983, 1990, 1997, and 2014 were reviewed for this assessment.

No RECs were identified as a result of the historic topographic map review.

### **Aerial Photographs**

Aerial photographs depicting the site and surrounding areas dated 1936, 1938, 1943, 1955, 1964, 1966, 1971, 1983, 1989, 1994, 1999, 2005, 2006, 2009, and 2011 were reviewed in conjunction with this Phase I ESA.

The aerial photo series shows the adjoining properties as undeveloped or agricultural up until the 1983 photo when SC-277 is visible at the eastern property boundary. The residential property north of the site is visible in the 1943 photo. The church to the north is visible in the

photo from 1994 and the residential subdivision to the south is visible after its development in the photo dated 1999.

No RECs were identified as a result of the historic aerial map review.

### **City Directories**

City directories from 1952 through 2013 were reviewed in conjunction with this Phase I ESA. Residential properties along with the park were identified.

No RECs were identified as a result of the historic city directory review.

## **6 Site Reconnaissance**

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A primary objective in a site inspection for a Phase I ESA is to determine if there is any obvious evidence of hazardous substances or petroleum products that were disposed of or used on the subject property at any time in the past that may create potential liability for an owner of the property. This evidence can be circumstantial, such as the observation of stressed vegetation, staining, unlabeled or suspicious containers or structures, unidentified oily substances, pooled liquids, and/or odors.

### **6.1 Methodology and Limiting Conditions**

On March 15, 2017, Mr. Brian Kvam and Mr. David Sykes of Cardno, performed a site reconnaissance of the subject and surrounding properties. The observations made during the site reconnaissance are provided in the following sections. This Phase I ESA did not include sampling or screening of any materials. Photographs of the subject property taken during the site visit are included in **Appendix D**.

### **6.2 Site Visit/Reconnaissance**

The following general observations were made during the site visit:

#### **On-site:**

- The site was vacant and undeveloped.
- Portions of the site were inaccessible due to vegetation and overgrowth.
- There was a dirt road down the middle of the property that led to a bill board located near the eastern property boundary and SC-277.
- A low spot where surface water appears to drain from east to west was observed near the northeastern property boundary. *(Later determined to be the area of the former sand pit/pond on the site. See discussion of aerial photos above.)*
- An apparent building foundation relict feature was noted near Farrow Road.
- Litter, trash, and construction and yard debris were observed at various locations across the site. Areas of what appeared to be considered illegal dumping were identified.
- A path from the church parcel to the housing development cuts across the site from north to south.

#### **Off-site:**

- A residential subdivision was located to the south of the site.



- A residence and church were located to the north.
- SC-277 is above the site on the eastern property boundary.
- Residences and small commercial businesses were located across Farrow Road to the west.

No RECs were identified during the site visit.

### **6.3 Hazardous Substances in Connection with Identified Uses**

No hazardous substances in connection with identified uses were observed.

### **6.4 Petroleum Products and Containers**

No petroleum products or containers were observed.

### **6.5 Unidentified Substance Containers**

Various containers with unidentified substances were observed strewn across the site as trash and what appeared to be illegal dumping.

### **6.6 Storage Tanks – USTs / ASTs**

No storage tanks or evidence of storage tanks were observed.

### **6.7 Solid Waste Disposal**

No indications of permitted solid waste disposal were identified on the site. Areas of construction and yard debris as well as household trash were observed across the site in numerous areas.

### **6.8 Evidence of Polychlorinated Biphenyls (PCBs)**

No evidence of PCB use or storage was observed.

### **6.9 Floor Drains / Sumps**

Because no structures exist, no floor drains or sumps were observed.

### **6.10 Other Environmental Concerns**

No other environmental concerns were identified.

## **7 Interviews**

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No interviews were conducted as part of this Phase I ESA. With the information provided by the user, Cardno did not believe additional interviews were necessary.

## 8 Conclusions

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Cardno has performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in Sections 2.4 and 9.0 of this report.

This assessment has revealed no evidence of RECs in connection with the subject property.

## 9 Deviations

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No significant deviations or deletions were made to the scope as defined by ASTM E-1527-13.

## 10 Significant Data Gaps

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No significant data gaps were identified that, in the opinion of the EP, would hinder the proper determination of potential RECs.

## 11 Additional Services

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No additional services were provided for this assessment.

## 12 References

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American Society for Testing and Materials, 2013, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

Flood Insurance Rate Map Number 45079C0242K. FEMA.

<<http://gis1.msc.fema.gov/Website/newstore/Viewer.htm>>.

Generalized Geologic Map of South Carolina. 2005. South Carolina Department of Natural Resources Geologic Survey. < <http://www.dnr.sc.gov/geology/geology.htm>>.

Geology of the Carolinas, 1991, Carolina Geological Society, J. Wright Horton, Jr. and Victor A. Zullo.

Groundwater Atlas of the United States. February 9, 2009. United States Geological Survey. < <http://pubs.usgs.gov/ha/ha730/index.html>>.

National Wetlands Inventory. October 6, 2011. U.S. Fish & Wildlife Service.

<<http://www.fws.gov/wetlands/Data/Mapper.html>>.

## 13 Signature of Environmental Professional

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This Phase I ESA was overseen and/or performed by Cardno Senior Project Manager, Mr. Brian Kvam, P.G. (SC 2361). Mr. Kvam is a Professional Geologist (P.G.) with over 20 years of experience in environmental practice. He has managed and/or otherwise been directly involved in hundreds of environmental site assessments during this period (**Appendix E**).

I declare that, to the best of my professional knowledge and belief, I meet the definition of an EP as defined in 40 CFR § 312.10. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312 and ASTM 1527-13.



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Brian Kvam, P.G., SC Reg. 2361  
Senior Project Manager

04/11/2017

Date